



Docket No. 20488/44-DIV-CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Demuth et al.

ART UNIT: Not yet assigned

SERIAL NO.: 10/676,832

FILED: October 1, 2003

FOR: **METHOD FOR THE IMPROVEMENT OF ISLET
SIGNALING IN DIABETES MELLITUS AND FOR ITS
PREVENTION**

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By: Sandra J. Wittrup
Sandra J. Wittrup

November 19, 2003
Date

**INFORMATION DISCLOSURE STATEMENT
SUBMITTING REFERENCES ON COMPACT DISC**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: November 19, 2003

Pursuant to Applicant(s) duty of disclosure, the information listed in the attached form PTO-1449 is brought to the attention of the Examiner.

The citation of the listed items is not a representation that they constitute a complete or exhaustive listing of the relevant art or that the references are prior art. The items listed are submitted in good faith, but are not intended to substitute for the Examiner's search. It is hoped, however, that in addition to apprising the Examiner of these particular items, they will assist in identifying fields of search and in making as full and complete a search as possible.

The filing of this information disclosure statement is not an admission that the information cited herein is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

In accordance with the requirement under 37 C.F.R. 1.98 (3)(i), the following are concise explanations of the relevance, as presently understood, with regard to those items submitted herewith that are not in the English language:

I. LIST OF PATENTS, PUBLICATIONS OR OTHER INFORMATION

The patents, publications or other information submitted for consideration by the Office are listed on PTO-1449, attached hereto.

II. COPIES

- a. Submitted herewith on Compact Disc is a legible copy of (i) each U.S and foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed.

III. CONCISE EXPLANATION OF THE RELEVANCE

(check at least one box)

- a. Except as may be indicated below in (b), all of the patents, publications or other information are in the English language or were cited in an English language Search Report, a copy of which is attached hereto (concise explanation not required).

- b. A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:

FRENCH LANGUAGE FR 2 696 740 Applicants have relied on an English language abstract in determining that this patent apparently relates to Dimethylbiguanide drug derivatives and their medical applications.

FRENCH LANGUAGE FR 2 085 665 Applicants have relied on an English language abstract in determining that this patent apparently relates to biguanide substitutes possessing a hypoglycemic property.

GERMAN LANGUAGE DT 25 42 598 A1 Applicants have relied on an English language abstract in determining that this patent apparently relates to biguanide salts as well as a method for preparing such salts. In addition to this the invention apparently covers pharmaceutical compounds which contain such salts.

GERMAN LANGUAGE WO 97/40832 Applicants have relied on an English language abstract in determining that this patent apparently relates to the use of a method for reducing in the blood of a mammal by administration of effectors the enzyme activity of dipeptidyl peptidase (DP IV) or enzyme activity similar to DP IV, the endogenous (or additionally exogenously administered) insulinotropic peptide gastric inhibitory polypeptide 1-42 and glucagon-like peptide amide-1 7-36 are decomposed in a causal sequence to a reduced extent by DP IV enzymes or those similar to DP IV.

JAPANESE PATENT JP 4-334357A2: Applicants have relied on an English language abstract in determining that this patent ACYL DERIVATIVE HAVING ENZYME-INHIBITING ACTION, apparently relates to a compound having a prolyl endopeptidase activity-inhibiting action and useful as an antidement agent, especially an anti-amnestic agent.

GERMAN LANGUAGE DE 299 09 210 U1 Applicants have relied on an English language abstract in determining that this patent apparently relates to dipeptide compounds or compounds analogous to dipeptide compounds, which are made of an amino acid and a thiazolidine or pyrrolidine group, and to their salts. The invention further relates to the use of these compounds in the treatment of impaired glucose tolerance, glucosuria, hyperlipidemia, metabolic acidosis, diabetes mellitus, diabetic neuropathy and nephropathy as well as secondary diseases of diabetes mellitus in mammals.

GERMAN LANGUAGE DE 198 26 972 A1 Applicants have relied on an English language abstract in determining that this patent apparently relates to the use of inhibitors (I) of dipeptidyl peptidase IV (DP IV) or analogous enzymes for inhibiting the activation and proliferation of keratinocytes (including malignantly transformed keratinocytes) and tumor cells derived from keratinocytes.

GERMAN LANGUAGE WO 99/61431 Applicants have relied on an English language abstract in determining that this patent apparently relates to dipeptide compounds or compounds analogous to dipeptide compounds, which are made of an amino acid and a thiazolidine or pyrrolidine group, and to their salts. The invention further relates to the use of these compounds in the treatment of impaired glucose tolerance, glucosuria, hyperlipidemia, metabolic acidosis, diabetes mellitus, diabetic neuropathy and nephropathy as well as secondary diseases of diabetes mellitus in mammals.

- c. The following additional information is provided for the Examiner's consideration:

FEES

IV. **THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(b)**
(check one box)

- a. within three months of the filing date of a national application (37 C.F.R. § 1.97(b) (1)). No fee or certification is required.
- b. within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b) (2)). No fee or certification is required.
- c. before the mailing date of a first Action on the merits (37 C.F.R. § 1.97(b) (3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e)below, or, if no certification has been made, charge our deposit account a fee in the amount of \$180.00 as required by 37 C.F.R. § 1.17(p).

V. **THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(c):**
(check one box)

before the mailing date of a Final Office Action under 37 C.F.R. § 1.113 (See 37 C.F.R. § 1.97(c) (1)) or before the mailing date of a Notice of Allowance under 37 C.F.R. § 1.311 (See 37 C.F.R. § 1.97(c) (2)).

- a. No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).
or
b. See the certification below. No fee is required.

VI. **CERTIFICATION UNDER 37 C.F.R. § 1.97(e) (check only one box)**

The undersigned hereby certifies that

- a. each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- b. no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any

individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.

- c. Some of the items of information were cited in a communication from a foreign Patent Office as indicated in the Form 1449 by those references having an asterisk(*). As to this information, the undersigned certifies that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.
- A check in the amount of \$180.00 is enclosed for the above-indicated fee. A duplicate copy of this paper is attached.
- No fee is required.

VII. THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.704(d) (PATENT TERM ADJUSTMENT)

Applies to original applications (other than design) filed on or after May 29, 2000.

- a. _____ Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.
- b. X Enclosed herewith is form PTO-1449.
- c. X Copies of cited references are enclosed on a Compact Disc.
- d. _____ The listed references were cited in the enclosed International Search Report in a counterpart foreign application.

If the Examiner has any questions concerning this IDS, the Examiner is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the

PTO is requested to consider this IDS under the proper rule (with a petition, if necessary) and charge any additional fees to Deposit Account No. 50-0369.

Respectfully submitted,

Date: November 19, 2003


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FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT			ATTY. DOCKET NO.	SERIAL NO.			
			20488/44-DIV-CON	10/676,832			
			APPLICANT(S): Demuth et al.				
FILING DATE: October 1, 2003			ART UNIT: Not Yet Assigned				
UNITED STATES PATENT DOCUMENTS							
EXAM. INITIAL		DOCUMENT NUMBER	DATE	INVENTOR	CLASS	SUB CLASS	FIL. DATE IF APPR
	AA	2,961,377	11/22/1960	Shapiro et al.	167	65	
	AB	3,174,901	03/23/1965	Sterne	167	65	
	AC	3,879,541	04/22/1975	Kabbe et al.	424	326	
	AD	3,960,949	06/01/1976	Ahrens et al.	260	564 B	
	AE	4,028,402	06/07/1977	Fischer et al.	260	501.14	
	AF	4,935,493	06/19/1990	Bachovchin et al.	530	331	
	AG	5,433,955	07/18/1995	Bredehorst et al.	424	94.3	
	AH	5,462,928	10/31/1995	Bachovchin et al.	514	19	
	AI	5,512,549	04/30/1996	Chen et al.	514	12	
	AJ	5,543,396	08/06/1996	Powers et al.	514	19	
	AK	5,614,379	03/25/1997	MacKellar	435	68.1	
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	AV	6,110,949	08/29/2000	Villhauer	514	365	
	AW	6,124,305	09/26/2000	Villhauer	514	272	
	AX	6,172,081	01/09/2001	Damon	514	307	
Examiner:				Date:			



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UNITED STATES PATENT DOCUMENTS

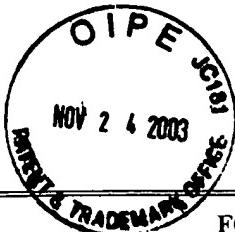
	AY	5,705,483	01/06/1998	Galloway et al.	514	12	
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	AAA	6,548,481 B1	04/15/2003	Demuth et al.	514	19	11/28/00

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRAN Y/N
	BA	WO 01/62266 A2	08/30/2001	PCT	A61K	38/00	Y
	BB	WO 00/53171	09/14/2000	PCT	A61K	31/155	Y
	BC	DT 25 42 598 A1	04/22/1976	Germany	C07C	129/16	N
	BD	FR 2 696 740 A1	04/15/1994	France	C07D	207/404	N
	BE	FR 2 085 665	12/31/1971	France	A61K	27/00	N
	BF	WO 97/40832	11/06/1997	PCT	A61K	31/425	Abstract only
	BG	WO 95/15309	06/08/1995	PCT	C07D	207/16	Y
	BH	JP 4334357	11/20/1992	Japan	C07C	233/57	Abstract only
	BI	WO 93/08259	04/29/1993	PCT	C12N		Y
	BJ	WO 95/11689	05/04/1995	PCT	A61K	37/00	Y
	BK	WO 97/45117	12/04/1997	PCT	A61K	31/435	Y
	BL	DE 196 16 486 C2	10/30/1997	Germany	A61K	45/00	Y
	BM	WO 95/29691	11/09/1995	PCT	A61K	38/00	Y
	BN	WO 98/22494	05/28/1998	PCT	C07K	5/06	Y
	BO	WO 00/01849	01/13/2000	PCT	C12Q	1/68	Y
	BP	EP 0 658 568 A1	06/21/1995	EPO	C07K	14/605	Y
	BQ	DD 296 075 A5	11/21/1991	Germany	C07D	295/04	Y
	BR	DD 296 075 A5	11/21/1991	Germany	C07D	295/04	N
	BS	EP 0 708 179 A2	04/24/1996	EPO	C12N	15/16	Y

Examiner:

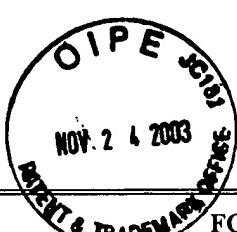
Date:



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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRAN Y/N
	BT	EP 0 995 440 A1	04/26/2000	EPO	A61K	31/425	N
	BU	WO 91/11457	08/08/1991	PCT	C07K	7/34	Y
	BV	WO 91/16339	10/31/1991	PCT	C07K	5/10	Y
	BW	WO 98/19998	05/14/1998	PCT	C07D	207/00	Y
	BX	WO 91/17767	11/28/1991	PCT	A61K	37/54	Y
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	BAA	DE 299 09 210 U	09/09/1999	Germany	A61K	31/425	N
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	BAC	WO 01/97808	12/27/2001	PCT	A61K	31/425	Y
	BAD	WO 01/34594 A1	05/17/2001	PCT	C07D	401/06	Y
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	BAH	WO 01/89569 A1	11/29/2001	PCT	A61K	45/06	Y
	BAI	WO 99/62914	12/09/1999	PCT	C07F	5/02	Y
	BAJ	WO 99/61431	12/02/1999	PCT	C07D	277/04	Abstract Only-
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	BAL	WO 01/32624 A1	05/10/2001	PCT	C07D	217/04	Y
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	BAN	WO 01/94310 A1	12/13/2001	PCT	C07D	209/12	Y
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OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)			
CA	Campbell, I.W. <u>New Antidiabetic Drugs</u> , ed. C.J. Bailey & P.R. Flatt, Smith-Gordon, "Sulphonylureas and metformin: efficacy and inadequacy". 3:33-51 (1990).		
CB	<u>CHEMICAL ABSTRACTS</u> , vol. 115. No. 15, 14. October 1991 (1991-10-14) Columbus, Ohio, US; abstract no. 149947q, SCHOEN EKKEHARD ET AL: "Dipeptidyl peptidase IV in the immune system. Effects of specific enzyme inhibitors on activity of dipeptidyl peptidase IV and proliferation of human lymphocytes"		
CC	<u>CHEMICAL ABSTRACTS</u> , vol. 118, no. 25, 21. June 1993 (1993-06-21) Columbus, Ohio, US; abstract no. 255342k, Hosoda, et al, "Preparation of N-(heterocyclic Carbonyl) Amino Acids and Analogs as Prolyl Endopeptidase Inhibitors", November 1992 (1992-11-20)		
CD	<u>CHEMICAL ABSTRACTS</u> , vol. 126, no. 2, 13. January 1997 (1997-01-13) Columbus, Ohio, US; abstract no. 16161j, STOECKEL A. ET AL: "Competitive inhibition of proline specific enzymes by amino acid thioxopyrrolidides and thiazolidides".		
CE	<u>Martindale The Extra Pharmacopoeia</u> , 30 th Edition, London Pharmaceutical Press, 1993, Page 1619.		
CF	AMASHEH, S., et al., "Electrophysiological analysis of the function of the mammalian renal peptide transporter expressed in Xenopus Laevis oocytes". <u>J. Physiol.</u> 504, 169-174 (1997)		
CG	Arai ET AL., "Synthesis of prolyl endopeptidase inhibitors and evaluation of their structure-activity relationships : in vitro inhibition of prolyl endopeptidase from Canine Brain" <u>CHEMICAL AND PHARMACEUTICAL BULLETIN</u> , Bd. 41, No. 9, 1993, pages. 1583-1588.		
CH	DURINX, C.; et al.; "Reference Values for Plasma Dipeptidyl-Pepidase IV activity and their Association with Other Laboratory Parameters". <u>Clin Chem Lab Med</u> 2001, February; 39 (2) :155-9, 1 page.		
CI	GOSSRAU, R.; "Cytochemistry of Membrane Proteases". <u>Histochem J</u> , 1985, July; 17 (7) :737-71, 1 page.		
CJ	HAHN, T.; et al.; "Enzyme Histochemical Evidence for the Presence of Potential Blood Pressure Regulating Proteases in Cultured Villous Explants from Human First Trimester Placentae". <u>Acta Histochem</u> 1993, December, 95 (2) :185-92, 1 page.		
CK	HEYMANN, E. et al., "Has Dipeptidyl Peptidase IV an Effect on Blood Pressure and Coagulation." <u>Klin Wochenschr</u> , 1984, January, 2;62 (1) :2-10, 1 page.		
CL	Lin, J. et al.: "Inhibition of depeptidyl peptidase IV by fluorooolefin-containing n-peptidyl-O-hydroxylamine peptidomimetics" <u>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA</u> , Vol. 95, November 1998, pages 14020-14024.		
CM	KOROM, S., et al "Inhibition of CD26/dipeptidyl peptidase IV activity in vivo prolongs cardiac allograft survival in rat recipients", <u>Transplantation</u> , Vol. 63, 1495 – 1500 No. 10 (1997)		
CN	MAGYAR, C.E. et al., "Proximal Tubule Na Transporter Responses are the same during Acute and Chronic Hypertension." <u>Am J. Physiol Renal Physiol</u> , 2000, August; 279 (2) :F358-69, 1 page.		
CO	<u>Martindale The Extra Pharmacopoeia</u> , 30 th Edition, London Pharmaceutical Press, 1993, Page 36.		
Examiner:		Date:	



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OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

	CP	MENTLEIN, R., et al., "Proteolytic processing of neuropeptide Y and peptide YY by dipeptidyl peptidase IV". <u>Regul. Pept.</u> 49, 133 -144 (1993)
	CQ	PAPIES, B. et al., "Isoenzyme (Lactate Dehydrogenase, Aspartate Aminotransferase) and Dipeptidyl Peptidase IV Activity Changes in Blood Plasma Likely Indicative of Organ Involvement due to Arterial Hypertension." <u>Cor Vasa</u> , 1991; 33 (3) :218-26, 1 page.
	CR	QURESHI, N.U.; et al., "Endogenous Neuropeptide Y Mediates Vasoconstriction during Endotoxic and Hemorrhagic Shock". <u>Regul Pept</u> , 1998, September 25; 75-76:215-20, 1 page.
	CS	TANKA, S., et al., "Suppression of arthritis by the inhibitors of dipeptidyl peptidase IV". <u>Int. J. Immunopharmacol</u> , Vol. 19, No. 1 Pages 15-24, (1997)
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	CU	The Merck Index, 12 th Edition, <u>An Encyclopedia of Chemicals, Drugs, and Biologicals</u> , 1996, Page 1014.
	CV	Deacon et al., <u>Journal of Clinical Endocrinology and Metabolism</u> , "Degradation of Glucagon-Like Peptide-1 by Human Plasma in Vitro Yields and N-Terminally Truncated Peptide That Is a Major Endogenous Metabolite in Vivo", (1995), 80(3): 952-957.
	CW	G.G. Duncan, <u>Diseases of Metabolism (Asian edition)</u> , "Diabetes Mellitus", (1966), p 951-957.
	CX	Gutniak et al., <u>Diabetes Care</u> , "Subcutaneous Injection of the Incretin Hormone Glucagon-Like Peptide 1 Abolishes Postprandial Glycemia in NIDDM", September 1994, 17(9): 1039-1044.
	CY	Gutniak et al., <u>New England Journal of Medicine</u> , "Antidiabetogenic Effect of Glucagon-like peptide-1 (7-36) Amide in Normal Subjects and Patients With Diabetes Mellitus", 1992, 326: 1316-1322.
	CZ	H.A. Smith et al., <u>Veterinary Pathology</u> (fourth edition), "Diseases and Disorders of Metabolism: Deficiency Diseases", (1972), p 1018-1020.
	CAA	Hendrick et al., <u>Metabolism – Clinical and Experimental</u> , "Glucagon-like Peptide-I-(7-37) Suppresses Hyperglycemia in Rats", January 1993, 42(1): 1-6.
	CAB	Hoffmann et al., <u>Journal of Chromatography A</u> , "Inhibition of dipeptidyl peptidase IV (DP IV) by anti-DP IV antibodies and non-substrate X-X-Pro- oligopeptides ascertained by capillary eletrophoresis", 1995, 716:355-362.
	CAC	Index Nominum, <u>International Drug Directory 1992/1993</u> , Medpharm Scientific Publishers, pages 728-729.
	CAD	Mannucci et al., <u>Diabetes Care</u> , "Effect of Metformin on Glucagon-Like Peptide 1 (GLP-1) and Leptin Levels in Obese Nondiabetic Subjects", 24(3): 489-494, March 2001.
	CAE	Nauck et al., <u>Diabetologia</u> , "Normalization of fasting hyperglycaemia by exogenous glucagon-like peptide 1 (7-36 amide) in Type 2 (non-insulin-dependent) diabetic patients", (1993), 36: 741-744.
	CAF	Pauly et al., <u>Regulatory Peptides</u> , "Abstracts Issue: Abstracts from the 11 th International Symposium on Regulatory Peptides", July 15, 1996, 64(1-3): 148 plus cover.

Examiner:

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OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

CAG	Stryer, <u>Biochemistry</u> 3 rd Ed., "Protein Conformation, Dynamics, and Function", 1988, p 191-193.
CAH	T.J. Kieffer et al., "Degradation of Glucose-Dependent Insulinotropic Polypeptide and Truncated Glucagon-Like Peptide 1 In Vitro and In Vivo by DP IV", <u>Endocrinology</u> , Vol. 136(8), (1995), p 3585-3596.
CAI	The Merck Index, <u>An Encyclopedia of Chemicals and Drugs</u> , 9 th Edition, Merck & Co., Inc., 1976, page 773
CAJ	C.B. Welch, <u>Medical Management of Non-Insulin-Dependent (Type II) Diabetes</u> , 3 rd edition, American Diabetes Association, "Diagnosis and Classification" p. 3, 1994, Pharmacologic Intervention (2 pages).
CAK	WETZEL, W., et al., "Effects of the CLIP fragment ACTH 20-24 on the duration of REM sleep episodes". <u>Neuropeptides</u> , 31, 41- 45 (1997)
CAL	Willms et al., <u>Journal of Clinical Endocrinology Metabolism</u> , "Gastric Emptying, Glucose Responses, and Insulin Secretion after a Liquid Test Meal: Effects of Exogenous Glucagon-Like Peptide-1 (GLP-1)-(7-36) Amide in Type 2 (Noninsulin-Dependent) Diabetic Patients", 1996, 81(1): 327-332.
CAM	Ashworth et al., <u>BIOORG. MED. CHEM. LETT.</u> , "2-Cyanopyrrolidides as Potent, Stable Inhibitors of Dipeptidyl Peptidase IV", (1996), 6(10): 1163-1166.
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INFORMATION DISCLOSURE STATEMENT

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